

Title of the Poster

Promoting discussions of a mathematics concept with real-world contexts: Eighth-grade students' understandings of the area formula

Abstract

Real-world contexts in mathematics could be used to provoke a better understanding of mathematical concepts if teachers pay attention to the students' interpretations of them. This study explores seven eighth-graders' understanding of the area concept while they worked on a packing problem for three 45-minute periods. The classroom teacher led the implementation of the task, and the author, as participant-observer, was a supplemental guide. The analysis of students' work, audio recordings, and researcher's field notes illuminated that students' methods to solve the problem were different. Some applied the area formula, some used volume, and others iterated an area unit. Some of them experienced what Piaget described as *disequilibrium* when they realized that the area formula gave them an answer that was inadequate for the problem. A discussion about the meaning of the formula for area emerged. This study demonstrates how a task involving a familiar context provided an opportunity for students to use their out-of-school knowledge and understand a mathematical concept in depth. Teachers and mathematics educators might focus their attention on the mathematics that students associate to real-world tasks.